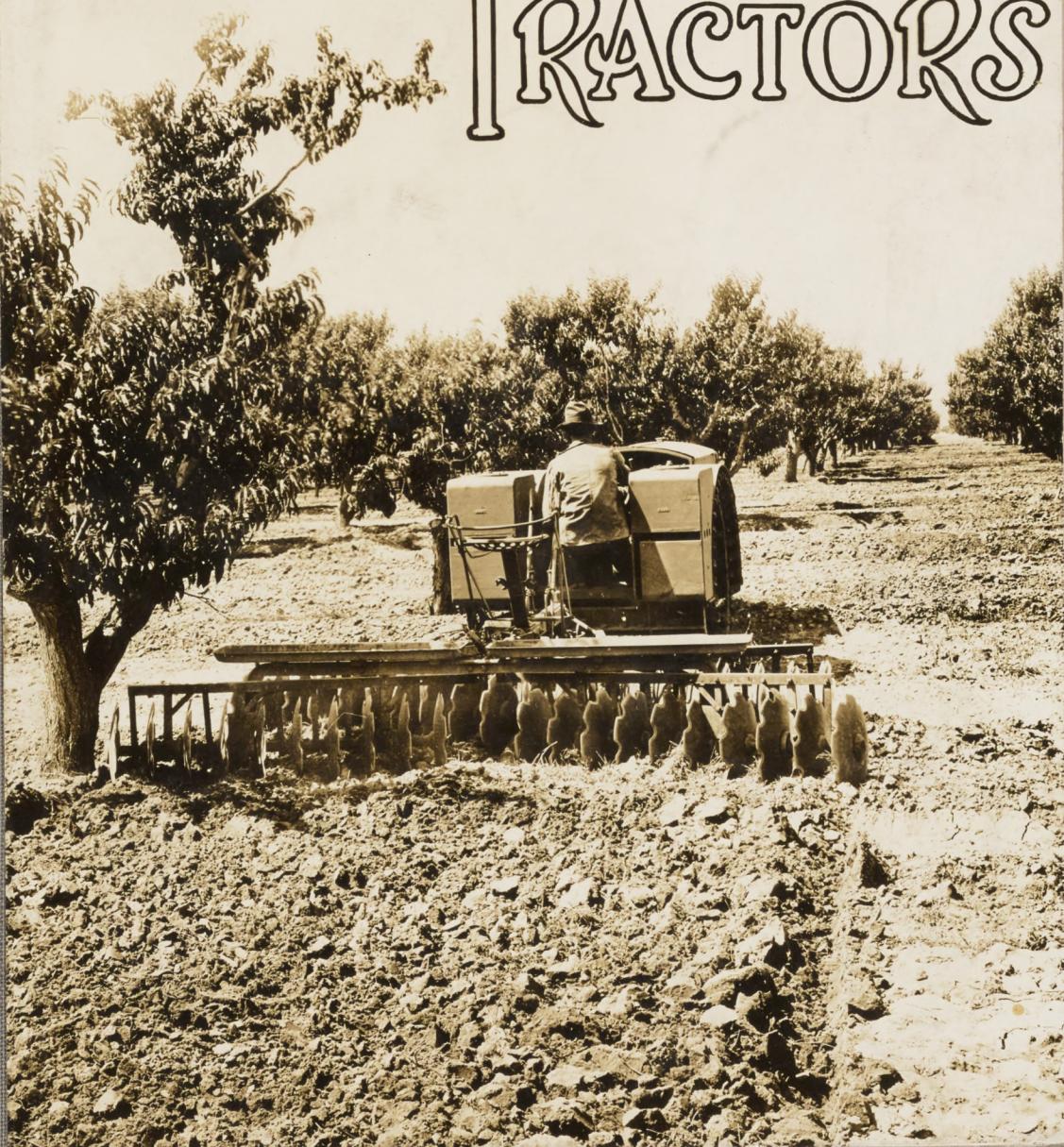
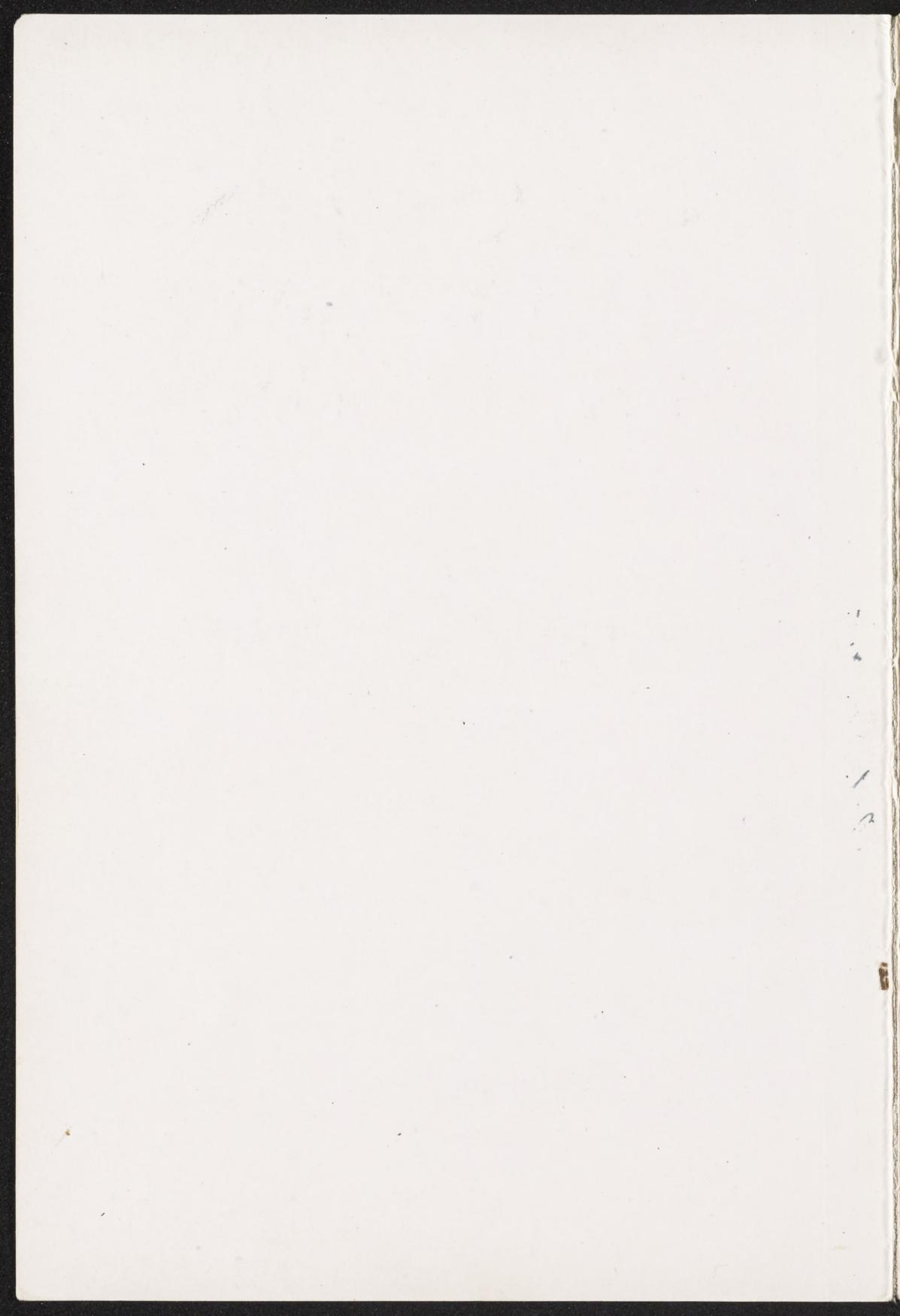


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Sams SO Sieve-Grip TRACTORS





SAMSON SIEVE-GRIP TRACTORS



Oct. 20. 1915.

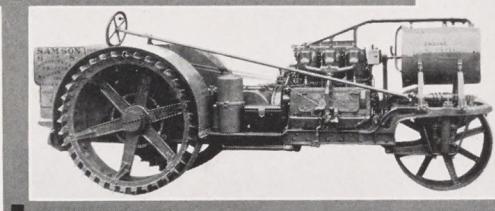
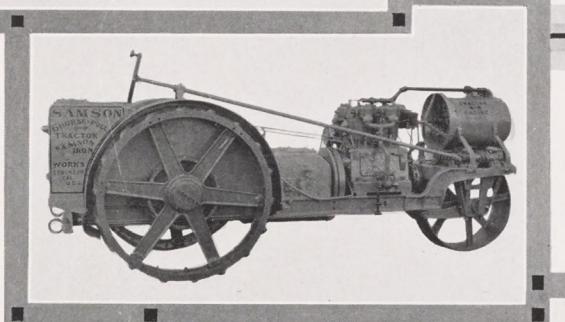
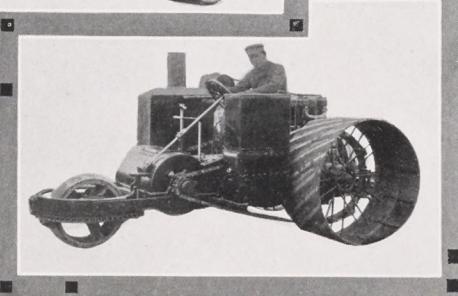
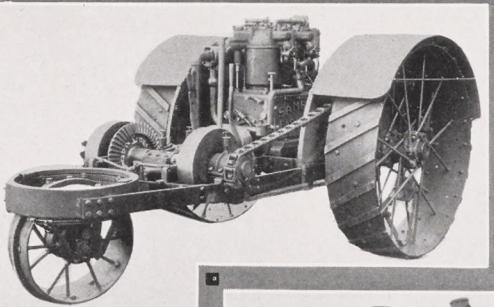
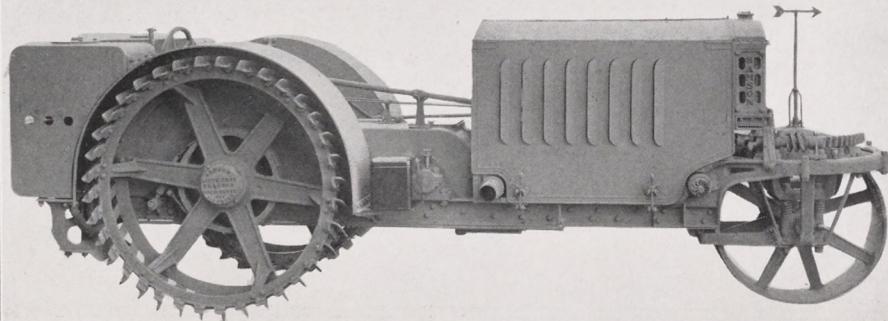
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SAMSON IRON WORKS
Stockton, California

Evolution of the Samson Sieve-Grip Tractors

All
the
best
ideas of
successful
Tractor
building
since
1902
are
embodied
in
the
present

Samson Sieve-Grip Tractor



FOREWORD

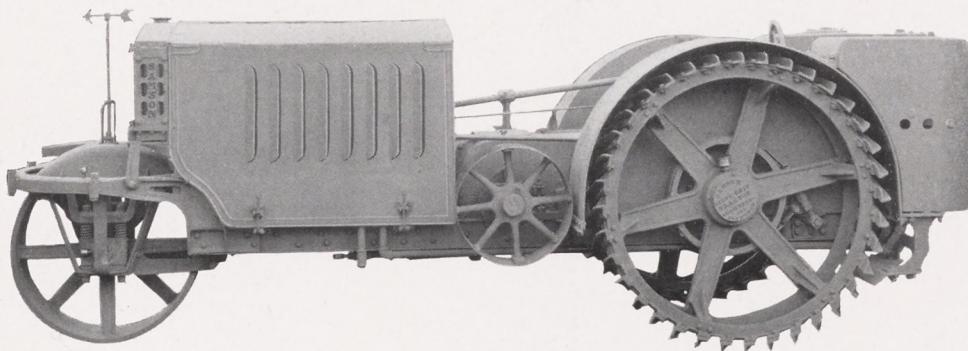
In presenting this catalog it is our aim to give as comprehensive a description as possible of the Samson Sieve-Grip Tractor, eliminating all technical terms and machine shop phrases, with which the average layman is not familiar.

In the selection of Illustrations we have chosen those which will immediately convey to the interested purchaser the meaning of our text.

Our instruction book gives, in a more minute form, the finer details which the owner uses to advantage in the handling of his tractor, assuring him of the 100% efficiency for which the Samson Sieve-Grip Tractor is built; also a complete set of photographic reproductions of parts, numerically arranged and indexed, making it a simple and convenient matter in the replacing of any such part should the case so warrant.

Every purchaser of a tractor knows just what his animals can do per draw bar pull, in certain soils, and can compare it with the following specifications and general text.

He knows what they eat and the care they require—that they grow older each day and must rest each night. It is our endeavor, not to tell him about his horses, but to tell him what the Samson Sieve-Grip Tractor is, what it will do, and why he should have it.



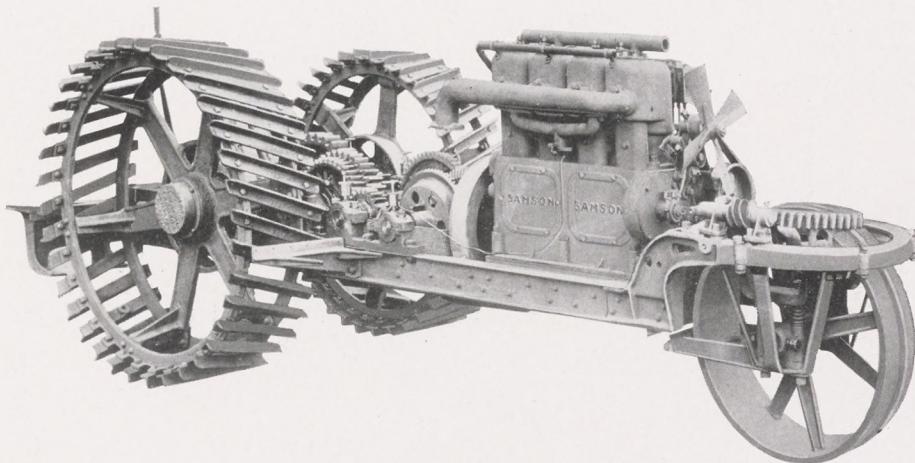
SAMSON SIEVE-GRIP TRACTORS

THE SAMSON TRACTOR in general is of absolute dust proof design made to take the place of eight to ten horses, whether it be an agricultural tool, road-making machine or wagon, having sufficient surplus power to take care of any emergency overload or to haul up any reasonable grade.

As a stationary power plant it will drive any machinery requiring up to 25 to 30 engine horsepower.

It will turn in double its wheel base or inside of an eighteen-foot circle.

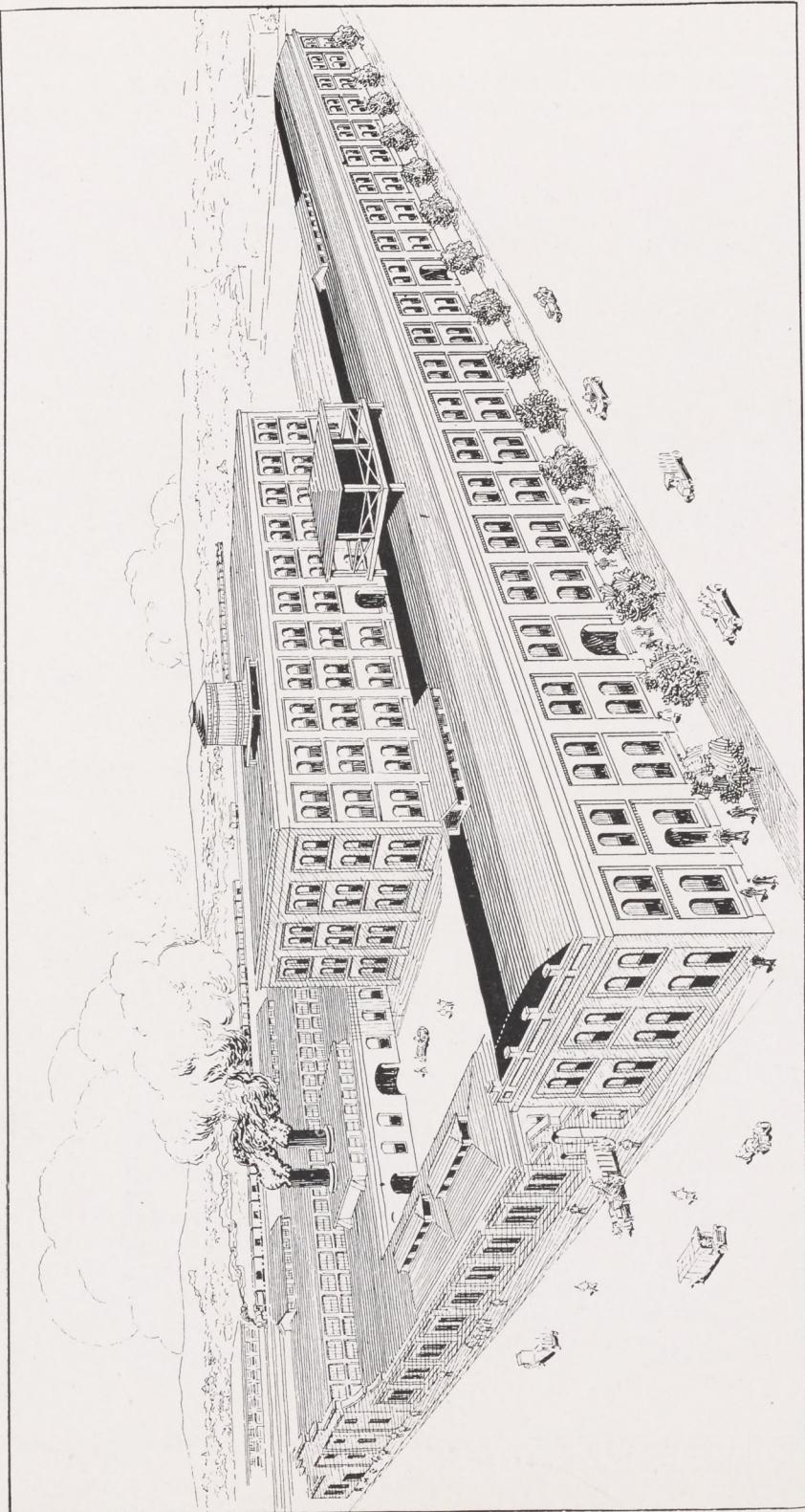
It is equipped with the Sieve-Grip wheels (registered and patented in U. S. A. and foreign countries), which, we believe, will solve the tractor problem; for, with this wheel,



the packing of the soil with the old broad tire wheel and the high cost and rapid wear of the so-called track laying type, with its exposed mechanism, the happy medium is reached.

With its length of 12 feet, width of 60 inches and highest part above ground 52 inches—equipped with the Sieve-Grip wheels—unusual under-rating—replete with the full quota of "Made to stay Made" and "Sold to stay Sold" element—we believe that the

**Samson Sieve-Grip
Tractor is the
universal
tractor**



— SAMSON IRON WORKS AT STOCKTON, CALIF. —

THE PLANT

THE PLANT BEHIND THE SAMSON TRACTOR

THE SAMSON IRON WORKS, situated in Stockton, California, have been manufacturing oil engines up to 200 horsepower and centrifugal pumps up to 50,000 gallons capacity per minute for over fifteen years, and that successfully. They are pioneers in the tractor industry and built their first tractor over twelve years ago, also successfully.

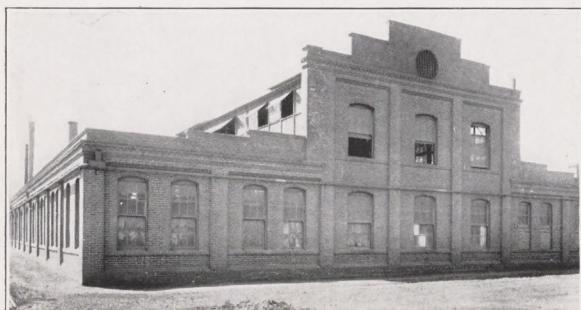
To substantiate the aforementioned statement, visitors to the works are astonished to find a Samson Tractor eleven years old, equipped with a portable crane, carrying four and five-ton castings and other heavy machinery about the spacious yards within the enclosures of the works.

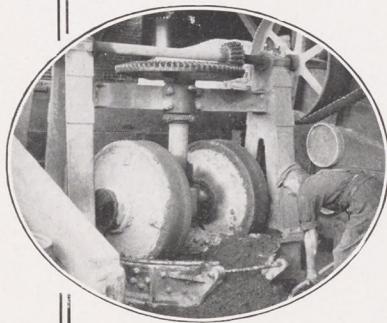
It should be noted that after having watched the performance of their early products they found it positively essential that all parts of a tractor must be enclosed in dust-proof castings, showing the willingness to correct their own mistakes, and proving the eagerness to be the first producer of the really Universal Tractor.

The plant is composed of numerous departments; namely, engineering, manufacturing, mechanical, assembling, testing, painting, and shipping.

ENGINEERING: The engineering department consists of a chief engineer, under whose instruction all heads of other departments carry out the work allotted to their respective departments. He is assisted by a chief draughtsman and corps of assistants. It is this department that is responsible for the design of all Samson products. It is here that all tractor designs are created, changes planned and improvements worked out.

MANUFACTURING: The manufacturing department receives all raw materials required, such as pig iron, steel billets, babbitt ingots, etc. It is equipped with the most modern of machinery for the skillful manufacture of patterns for the moulding department.





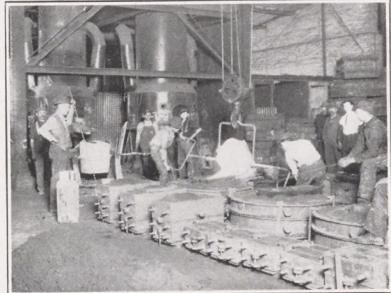
MOULDING

In the Moulding Department the best of skilled help is employed using throughout all metal flasks. All moulding sands are of especially fine material, carefully ground and mixed in a rotary mill to suit the different castings. Our core department is a feature in itself while the

drying ovens, so essential in the handling of perfect moulds, are of the most modern type.

IRON FOUNDRY

Separate and apart from the Crucible Vanadium Steel foundry is the Iron Foundry. It has two furnaces of 10 and 20 tons capacity and the handling of the castings is facilitated by a 10-ton Electric Crane.



CRUCIBLE VANADIUM STEEL FOUNDRY

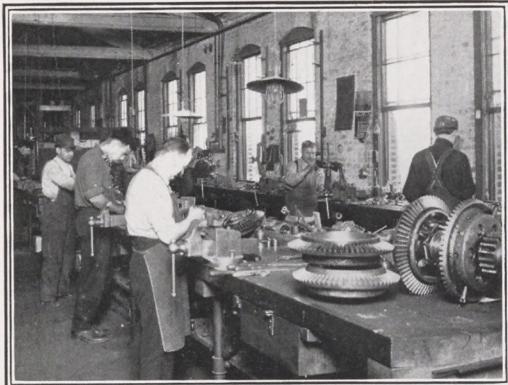
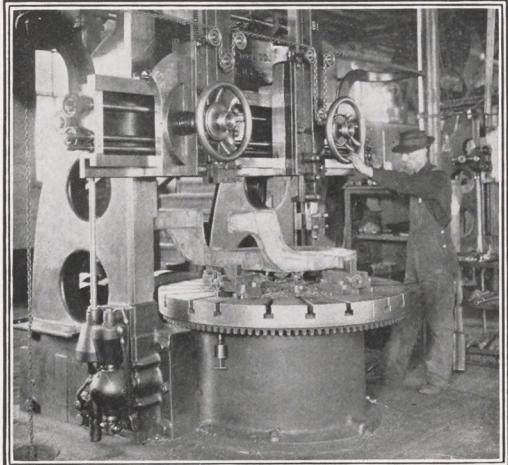
The Crucible Vanadium Steel foundry, very rare in any manufacturing department, and a proud acquisition to the Samson Iron Works, is located in still another adjoining building. It is in this foundry that so much skill is required in the modeling of the moulds, pouring of the metal and proper handling of chilling and shrinkage.



MECHANICAL

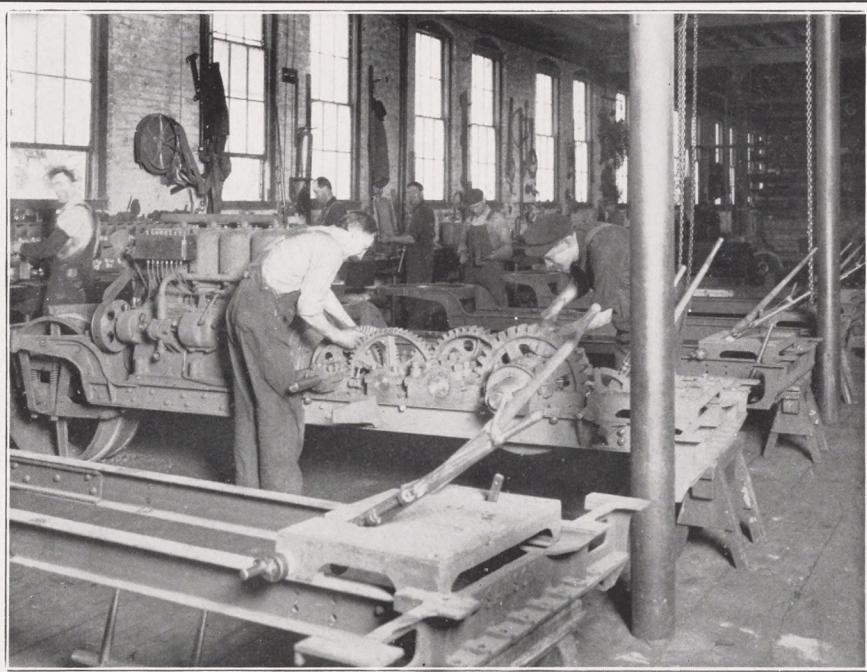
THE mechanical department receives all material from the foundries and it is here that the castings are machined and prepared for the assembling department. The castings go to one department, the engine housing to another, the gears to another and the smaller parts to still another, and so on.

Aside from a forest of the most modern of both large and small machinery, it maintains a tool room in which prevails a steadfast rule that no machinist be allowed to sharpen his own tools but must deposit his tools, for which he receives a check, the tool then being sharp-



ened by men who do nothing but that one class of work, insuring uniformity in all work throughout the shops.





ASSEMBLING

FROM the mechanical department the different parts come to the assembling floor. Here they are carefully placed, fitted and fastened, until a tractor is completed. Such work as valve grinding, magneto tuning, hand scraping of bearings, installing of transmissions, and so on, is all carried out on this floor under careful supervision of the superintendent and assembling foremen.

When completed and properly checked up the tractor leaves the assembling floor for the testing house.

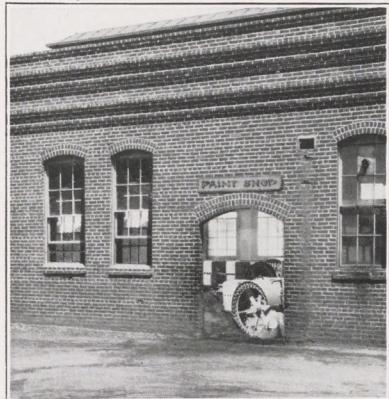
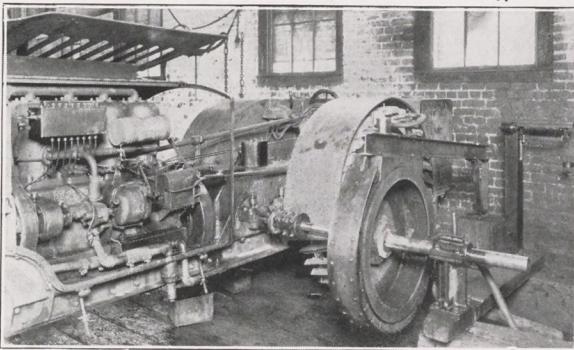


TESTING

The testing house is separate and apart from the other branches of the work and consists of a large room especially equipped for the testing of every tractor turned out by the assembling department.

The foreman and crew of this department are in no way connected with any of the rest of the departments, and do nothing

but test tractors. They are carefully selected men of integrity and it is upon these men that the responsibility lies, rather than upon the men who designed or built the tractor; for it is unwise to allow the builder to criticise his own work.



The tractor is stripped of its power plant, and it having been placed on the testing stand, a Prony brake is applied for from four to nine hours or until every moving part is performing its proper function and that at a greatly increased load to which it is rated.

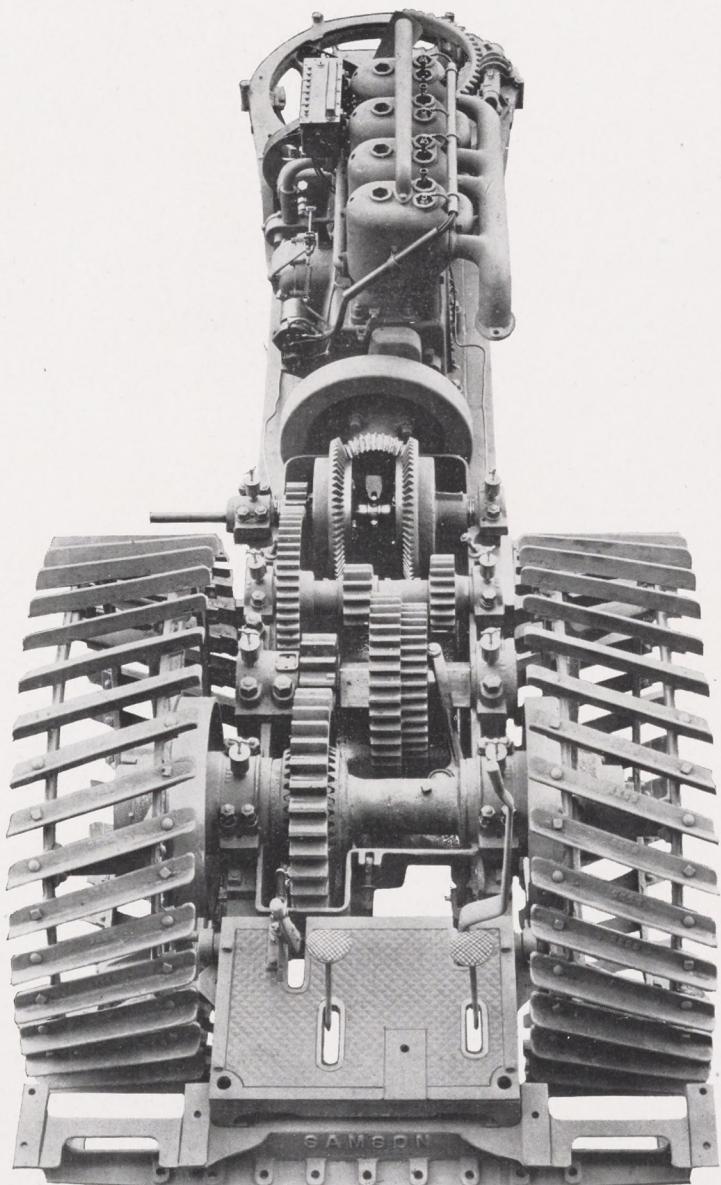
After a most rigid test with the different grades of fuel, it is again mounted on the tractor, coupled to the transmission and the draw bar pull is tested by a dynamometer.

PAINTING

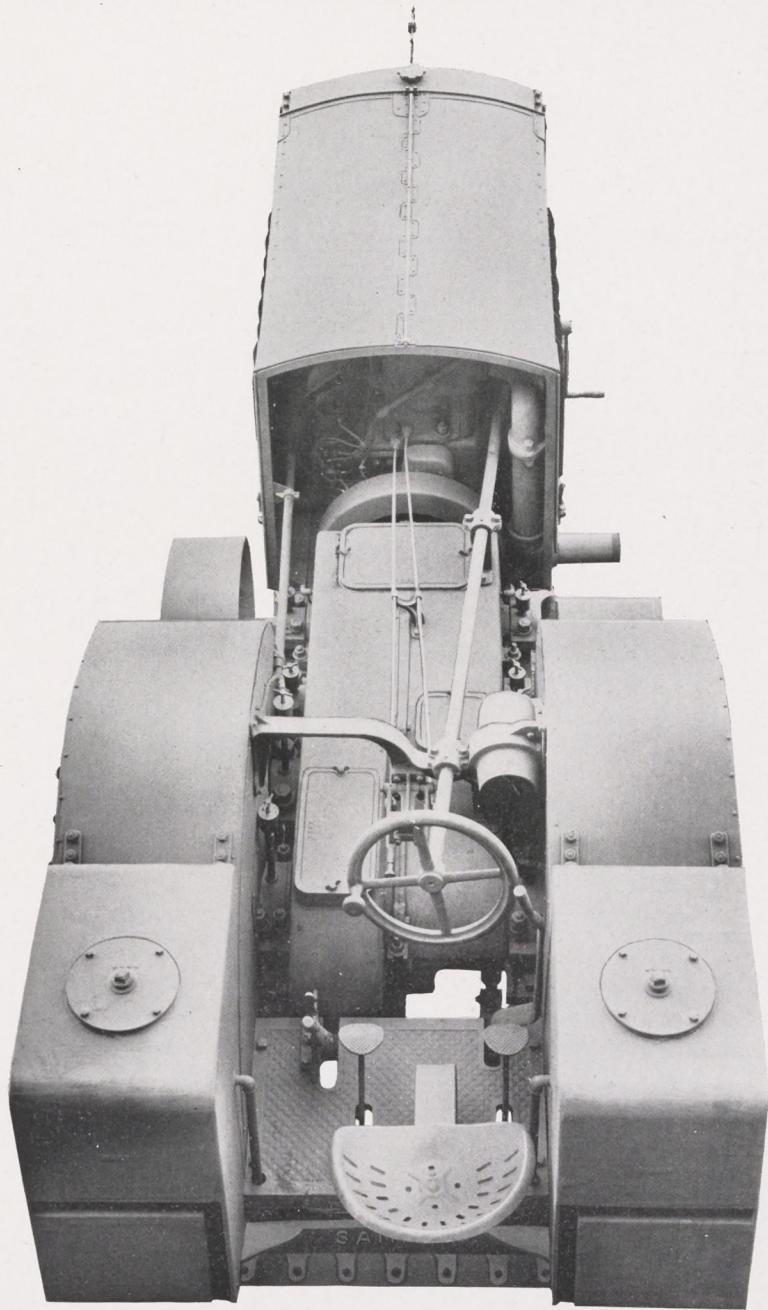
Having received the final O. K., the paint shop crew cleans it all up, gives it its final coat of paint and turns it over to the shipping department, where the equipment of tools and accessories are added and the tractor made ready for shipment.

SHIPPING





Stripped.

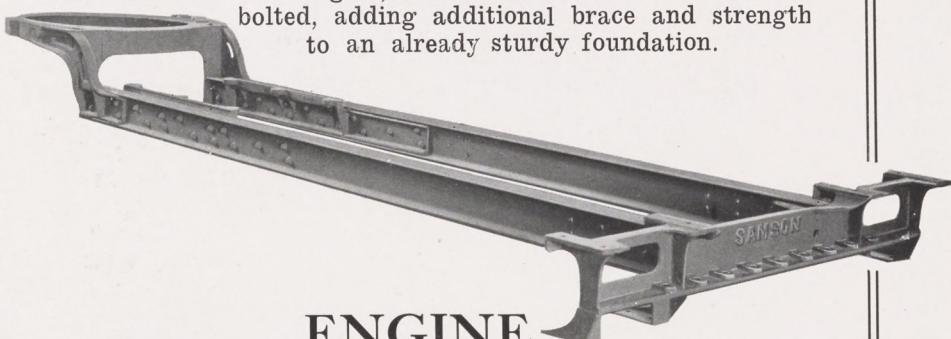


Housed.

TRACTOR ANALYSIS FRAME

THE foundation or frame of the Samson Sieve-Grip Tractor is of heavy steel I-beams. The crucible steel front wheel turn-table is securely riveted to the I-beams, as is the draw bar, and with the heavy steel engine supports, riveted near the turn-table, make it a foundation strong enough to stand any kind of strain to which the tractor may be subjected.

Referring to the above description, it is readily understood that the very foundation of the tractor is well able to carry the mechanism of which so much is expected. It is to this substantial frame that the engine, transmission and fuel tanks are bolted, adding additional brace and strength to an already sturdy foundation.

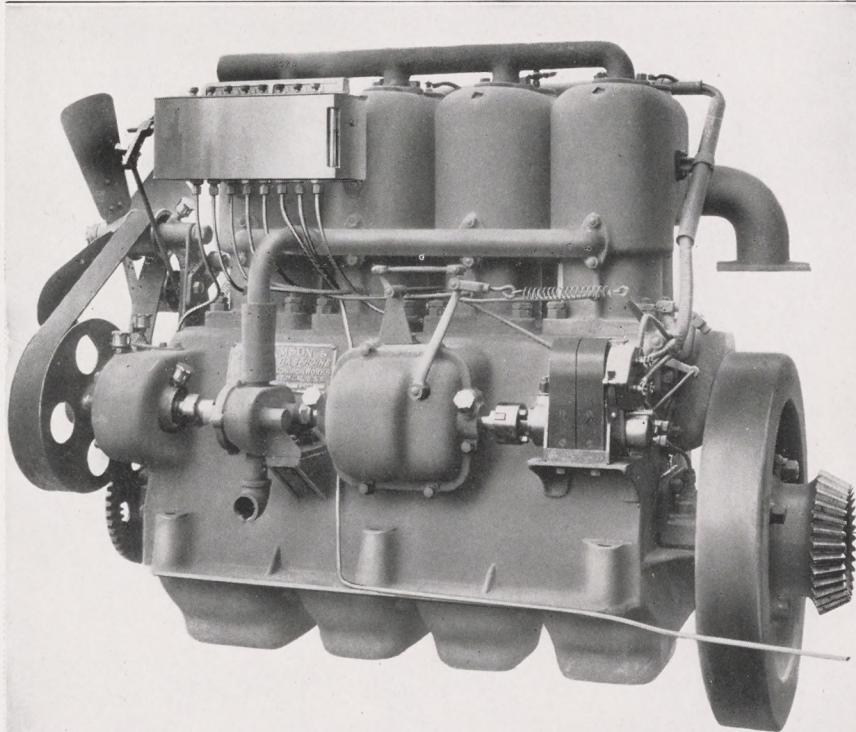


ENGINE

TO make possible the fact that the Samson Sieve-Grip Tractor is really the Universal Tractor, it is necessary to embody the same simplicity and yet thoroughness in every part. Hence, if every piece of mechanism is so treated that it becomes really a feature, then only will the entire assembling become a perfect unit.

The Power Plant has by no means been eliminated from the list of features. It is designed and manufactured by men of wide and varied experience who have been designing and building gas and oil engines up to 200 horsepower for over fifteen years.

Backed by this experience and all the modern facilities of the Samson Iron Works, they are able to place on the frame of their tractor an engine that immediately becomes one of the very important features.



THE SAMSON TRACTOR POWER PLANT

The Samson Tractor Power Plant is of the enclosed absolute dust-proof type, especially designed for tractor service.

Its ignition is by high tension magneto, and the carburetor is designed to burn distillate, kerosene or gasoline.

Years of gas engine designing and engine building experience is embodied in the Samson Tractor Engine. It is remarkably simple, containing not a single complicated or unnecessary piece in its entire mechanism, and designed and built to attain 100% efficiency in operation and durability.

The entire unit is completely covered with a pressed galvanized steel hood and so hung that either side can be easily raised for access to the engine.

ENGINE
FRAME

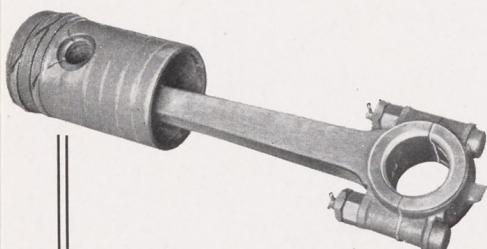
PISTONS CONNECTING RODS VALVES CRANK CYLINDERS ENGINE HOUSING SHAFTS

CAM SHAFT CARBURETOR GOVERNOR SAFETY CRANK IGNITION

LUBRICATION BEARINGS COOLING

TRANSMISSION

WHEELS

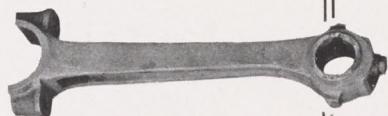


light in weight. Its three expansion rings are made of especially live, springy material. Oil grooves are cut between each ring.

The piston pins are of large diameter and hollow. They are made of especially selected heat treated steel, hardened and ground. They are securely fastened with interchangeable bolts. The oiling is partly splash, also through hole in pin and in addition through two tubes leading through the piston wall.

CONNECTING RODS

The connecting rods are of vanadium crucible steel, with removable and adjustable bronze steel bearings lined with nickel babbitt securely anchored. A high grade bronze bushing is used in the piston end of the connecting rod.



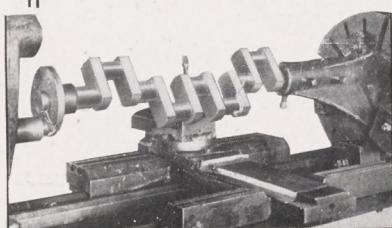
VALVES

The valves are two inches in diameter and interchangeable. They are made of special material by ourselves and fitted with non-corrosive stems, the stem guides are removable and interchangeable. The valves and entire lifting device are enclosed by aluminum covers that can be easily removed for inspection.

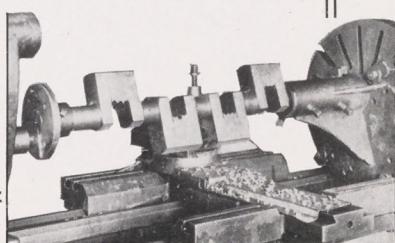
CRANK SHAFT

This vital part of the engine, which conveys the engine power to the draw bar, is made from one solid bar of steel. It is machined until its dimensions are reached to within one one-thousandth (.001) of an inch. It has

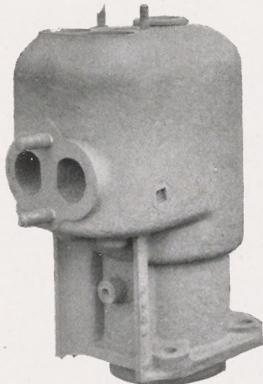
five bearing, three center and two end bearings.



=====



CYLINDERS



THE L-head type of cylinder is employed for several reasons. In this design the incoming gases rush across the exhaust valve, thus cooling it and also preventing pocketing dead burnt gases in the exhaust chamber as is the case in the T-head type. The fuel in the L-head type is much more thoroughly gasified by sweeping over the hot exhaust valve, economical power being derived from the same size motor.

The L-head type motor also overcomes the danger of wrecking the engine should a broken valve get caught between the piston and cylinder head as has been the case in many instances in valves-in-the-head type motors.

Large cleaning plugs easily removed for cleaning or inspecting cylinders or pistons are a feature in themselves, typical only of the "Samson" tractor engine.

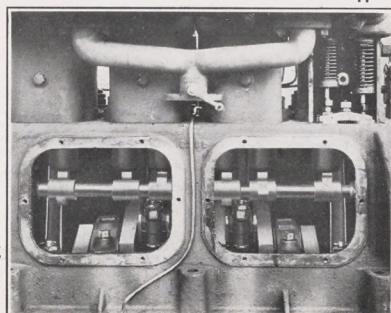
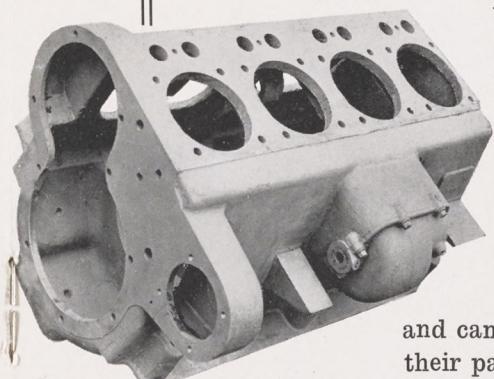
ENGINE HOUSING

THE crank case or engine housing of the Samson Sieve-Grip Tractor engine is cast in one. It will be immediately seen that extreme rigidity and positive and perfect alignment is the result of an engine housing cast in that manner.

In the design of same the creator was mindful of the fact that easy access to all parts was a feature to be considered as well as strength and perfect alignment.

Easy access is gained to the crank and cam shafts and their parts through

two large openings provided with aluminum covers, making the crank case dust proof. A gooseneck breather pipe allows ample ventilation.



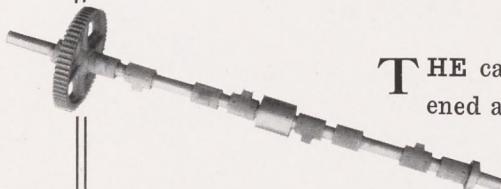
PISTONS CONNECTING RODS VALVES CRANK CYLINDERS ENGINE HOUSING SHAFTS

CAM SHAFT CARBURETOR GOVERNOR SAFETY CRANK IGNITION

LUBRICATION BEARINGS COOLING

TRANSMISSION

WHEELS



CAM SHAFT

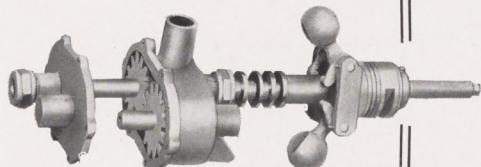
THE cam shaft is of special steel, hardened and ground, and receives its lubrication from the splash at the crank shaft. The cams, as well as the inlet and exhaust lifters, are also of especially fine hardened material. The lifters are fitted with tappets for easy adjustment.

GOVERNOR

DURING the many years in the building of thousands of gas engines, we have from time to time made important changes in the government of their action, always striving to better this so important essential, so that now we have an absolute perfect automatic check on the performance of our Samson Tractor Engine.

The governor is of the Flyball throttling type, enclosed in absolutely dust proof casing and runs in a bath of oil fed constantly from the splash pans.

Its bearings are typical of the rest of the bearings used throughout the tractor and it is equipped with ball thrust bearings.



THE CARBURETOR

THE Carburetor or fuel and air mixer, the importance of its functions so essential to the duty performed by the engine, is of special tractor design, and constructed to perfectly mix with air any of the high or low grade fuels, such as Distillate, Kerosene or Gasoline.

The air is drawn through a MOISTO-RIZER, the duty of which is to keep any particles of dust or dirt from entering the carburetor or cylinders, thereby insuring a perfect and clean mixture even when the tractor is working in heavy dust. It also moistens the air uniformly and automatically, which is of great benefit to any gas engine.

SAFETY CRANK

A STARTING crank that is free from kicks and carries an assurance of its impossibility to respond to back fire and cause injury to the tractioneer is another feature of the Samson Sieve-Grip Tractor.

It is of simple construction and carries no complicated mechanism to get out of order and so designed that back firing, should the spark be advanced too far, is taken up in a ratchet and not perceptible to the operator.



IGNITION SYSTEM

THE Magneto is mounted on the left side of the engine, securely bolted to the brass bracket provided, and its connections easily accessible.

The ignition is of the jump spark system with four dry batteries for starting.

All wires are heavily insulated and inclosed in heavy fibre tubing which insures a static leakage proof ignition system.

Spark coil and switch is easily accessible from driver's seat.

CAM SHAFT CARBURETOR GOVERNOR
SAFETY CRANK IGNITION

LUBRICATION BEARINGS
COOLING

TRANSMISSION

WHEELS

LUBRICATION

THE lubrication in the engine and transmission is splash and force feed.

The oiler starts and stops with the engine and is of the eight tube force feed type, each tube with its own outside adjustments affording proper regulation to the different bearings lubricated. This method guarantees an absolute positive feed.

The crank shaft end bearings have both systems of lubrication. The center bearings are lubricated by splash.

The governor is exposed inside of engine housing and in that way completely covered with oil from the splash.

The cam shaft and cams receive their lubrication in the same manner except that the end bearings are provided with compression cups.

The cylinders are lubricated by force feed, each cylinder having its positive feed and in addition the splash system.

Two tubes from the oiler lead to the friction clutch drums in the gear case.

All oils running from the bearings eventually find their way to the splash feed and in that way make the oiling system economical.

The transmission gears are operated continually in a bath of oil.

The shaft bearings in the gear case are provided with compression cups, as are other bearings throughout the tractor, such as the fan bearing, turn-table, front wheel, etc.

COOLING SYSTEM

THE cooling system is another of the numerous features in the perfect engine unit.

The radiator is constructed of bronze spiral radiator tubing with brass top and bottom plates, into which the tubes are securely fastened.

The top chamber and bottom tray are of cast iron, to which are machine fitted the steel sides, making in all a rigid frame into which is securely locked the plates and tubes.

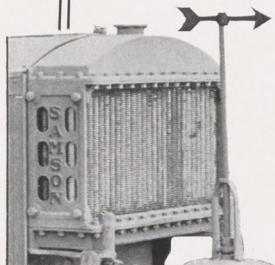
In this construction, radiator annoyances so common with other types are entirely obviated.

Circulating from the radiator the water enters two reservoirs provided, and is pumped to the cylinders.

Constant and perfect circulation is assured.

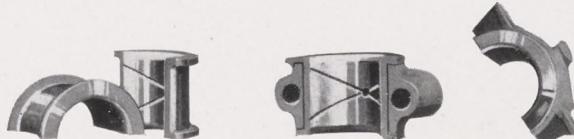
A bronze rotary pump, geared direct to the side shaft to which are also connected the governor and magneto, furnishes ample power with minimum wear.

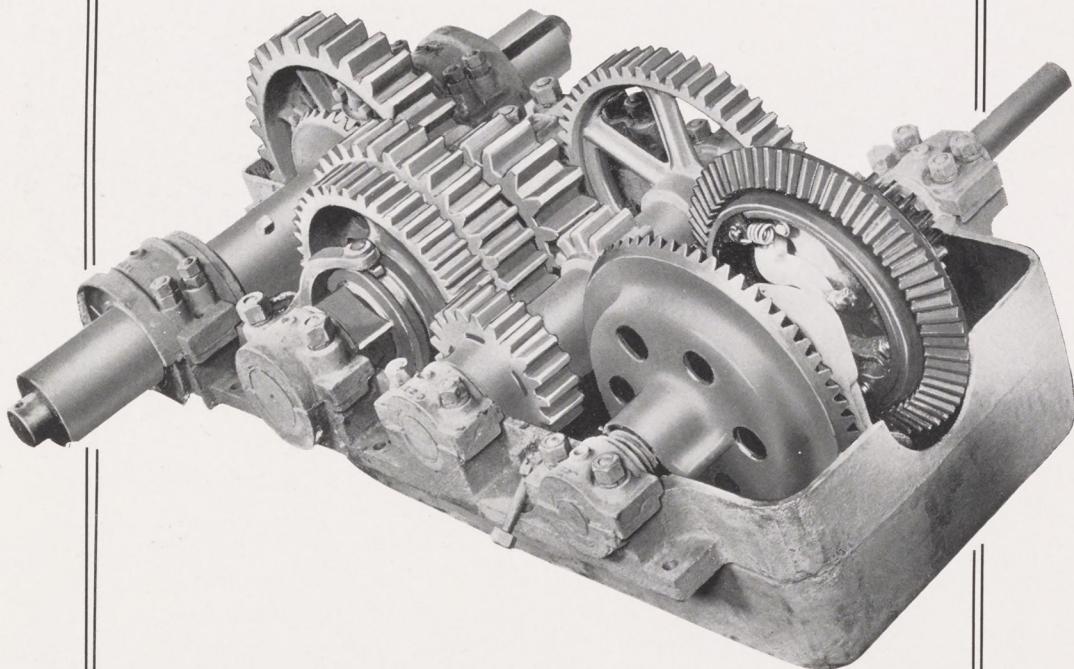
The fan, mounted behind the radiator and enclosed in the engine hood, pulls cool air through the tubes. It is of heavy construction, with large blades and is belt driven. The pulley is of large diameter and its shaft well mounted.



BEARINGS

ALL bearings throughout are made of the finest bearing material obtainable and are designed for long life and high efficiency.





THE TRANSMISSION

FOllowing in importance in the design of a successful tractor is the transmission, for on it depends the per cent of the engine's power delivered at the draw bar.

Close scrutiny of the Samson Transmission will reveal numerous features and prove it to be, like the engine, another of the important factors in satisfying the demand for a long looked for universal tractor.

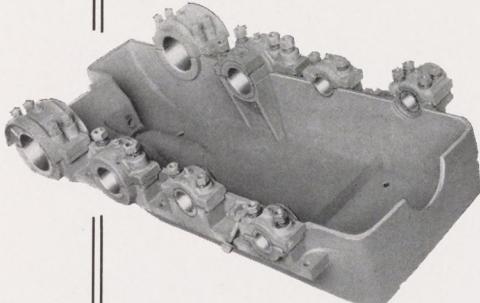
The transmission case is cast in three sections. The lower half in one piece insuring "non-leak" for the oil bath and extreme rigidity and perfect alignment in the bearings. The upper half is in two sections bolted together to facilitate the easy removal of same to gain easy access to the transmission.

In addition to the two top sections there are three small covers each fitted with thumb screws and are immediately above the more vital parts and afford easy access to same for examination.

The lower half is cast to closely conform with the contour of the bottom of the gears, thus requiring the least amount of oil so necessary to insure perfect transmission.

Locking devices are applied on all bolts and nuts.

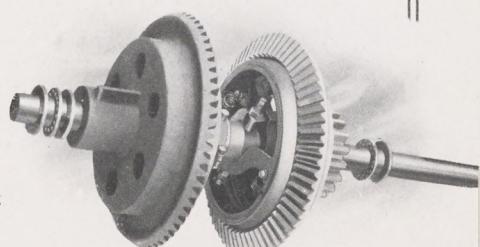
The transmission is of the heavy duty type especially designed to meet the various demands made on it in tractor duty.



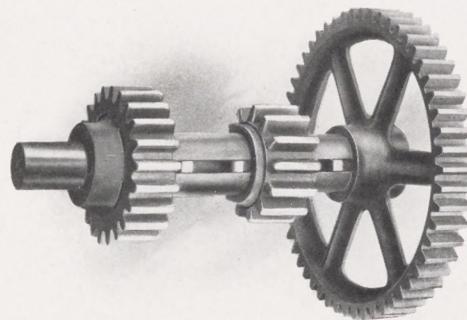
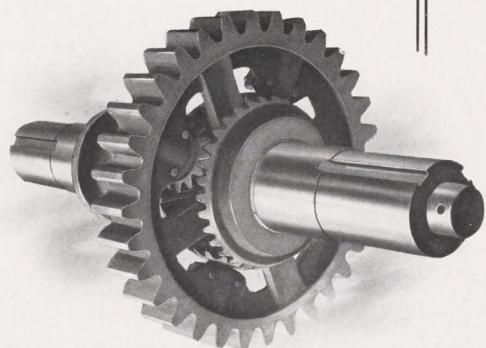
Another feature is that it can be operated from no load to heavy load in easy stages, picking up its load gradually until the full momentum is reached. The drums are made of long wearing material and operated with one lever for all speeds and in both directions for either stationary or field duty.

In the Samson Transmission all gears are of vanadium crucible steel, which wear slowly instead of breaking down without a moment's notice.

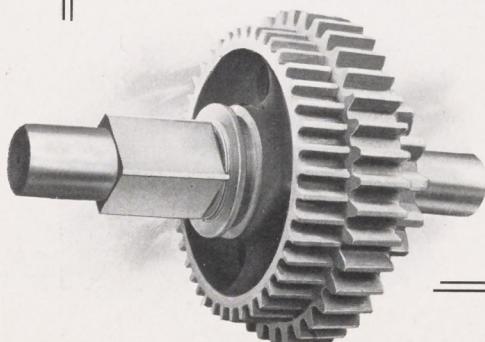
The friction clutch is double expansion double drum design and is extremely simple.



The differential is bevel gear type with four pinions and of extra heavy construction.

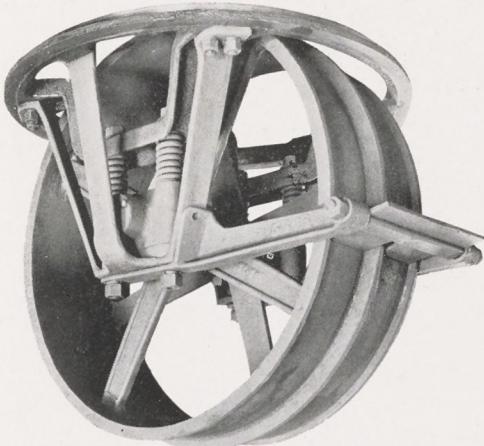


The driving gears are of extra heavy crucible steel.

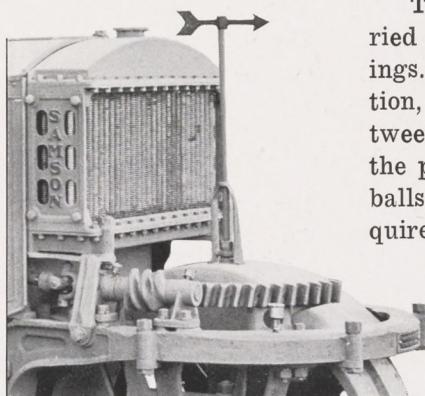


The speed change gears or sliding gears work on a machine cut 4-inch square shaft and not on keys and keyways.

FRONT WHEEL



THE front or steering wheel, with spokes and hub, is cast in one and of crucible steel. It is mounted in the crucible steel turn-table and brackets, provided with springs and rubber cushions to take up the shock, and is fitted with mud scrapers.

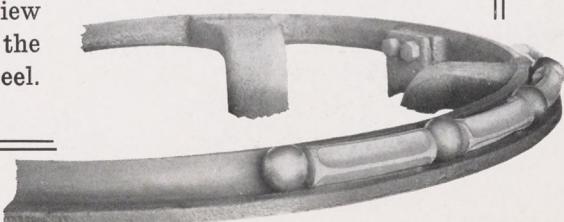


The steering frame is carried on an arc of steel ball bearings. To avoid the usual friction, separators are placed between the balls, same playing the part only of separating the balls, no other work being required of them.

The wheel is covered with an aluminum cast shield, which prevents any particles of dust or gravel that may arise from the front wheel getting into the radiator.

The worm gear steering principle is employed, assuring a steady course without slippage, regardless of the ruts or furrows that may be encountered.

An arrow, in direct view of the operator, indicates the position of the steering wheel.





THE SIEVE-GRIP WHEELS

MANY attempts have been made to overcome the loss of traction power experienced with the plain round wheel tractor.

Many devices have been applied to the wheels to prevent their slipping and at the same time minimizing clogging and packing of the soil.

The next move was towards the track laying type, intending, with it, to get the necessary traction. And while accomplished, it occasions an enormous upkeep expense and continuous attention, brought about by the sand and soil working into the oiled moving parts, grinding them to pieces.

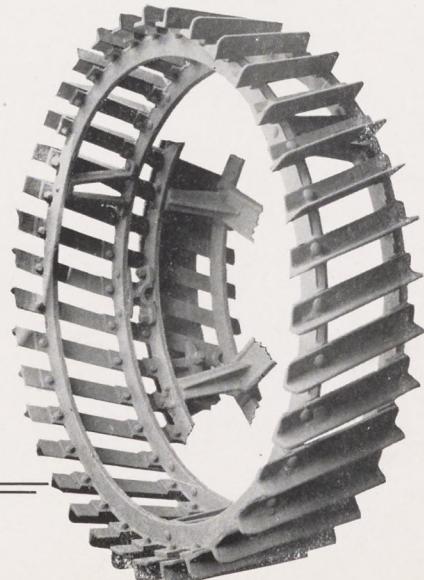
Something had to be done—and it was.

The rear wheels of Samson Tractors, patented and registered and known as the Sieve-Grip, are constructed entirely of crucible steel. Hub and spokes cast in one, and they have no moving parts. The Cutter Rings are riveted to the spokes, across the circumference of which is riveted every other grip, the remaining grips being bolted on for easy removal, should the conditions of the soil demand it.

The Sieve-Grip Wheel does all that the name implies. A mere skeleton and an unobstructed clearance on the inside, it not only grips the soil, but sieves or loosens it and does not pack it.

Road bands are furnished with each tractor for hauling on improved roads and are easily put on or removed.

Extension wheels can be furnished for extreme conditions.



GENERAL SPECIFICATIONS AND DIMENSIONS



TRACTOR

LENGTH OF TRACTOR—12 feet, 5 inches.

WIDTH OF TRACTOR—60 inches.

HIGHEST PART ABOVE GROUND—52 inches.

TRACTION WHEELS—Diameter, 48 inches.

FRONT WHEEL—Diameter, 32 inches; 12 inches wide. Has 3 guide rings.

FRAME—I-beams and crucible steel.

TRANSMISSION—Vanadium steel gears, enclosed and running in oil.

DRIVE—Floating axle with hub drive to crucible steel traction wheels.

SPEEDS—Two ahead and two reverse, 2 miles and 4 miles per hour. Can be varied with speed of engine.

CLUTCH—Samson improved tractor; double expansion; runs in oil.

LEVERS—Two, one for gear shift, one for go ahead and reverse.

PULLEY—20-inch diameter, 8-inch crown face, 1 $\frac{1}{8}$ -inch bore. Speed, 250 to 300 revolutions per minute.

POWER PLANT

ENGINE—Samson four-cylinder L-head Tractor Type, four cycle.

CYLINDERS—5-inch bore by 7-inch stroke.

CRANK SHAFT—Diameter, 2 $\frac{1}{2}$ inches, 1-inch offset.

CRANK PIN—Diameter, 2 $\frac{1}{2}$ inches by 2 $\frac{3}{4}$ inches.

FIVE CRANK SHAFT BEARINGS—Total combined width, 17 inches.

PISTON PIN—1 $\frac{15}{16}$.inch diameter and hollow. Three oiling methods.

VALVES—Inlet and exhaust are mechanically operated. (Valves are lifted plumb, without side strain, and are enclosed.)

VALVE CHAMBERS—Water jacketed and provided with caps for easy access to valves.

CLEANING PLUGS—In center of cylinder head, easily removed.

ENGINE SPEED—525 to 575 revolutions per minute.

BRAKE HORSE POWER—25 to 30.

IGNITION—High-tension magneto.

CARBURETER—Has no moving parts.

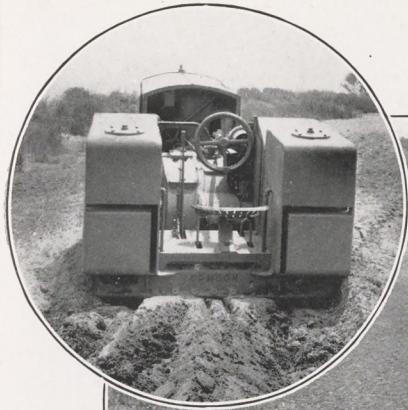
PUMP—Rotary. (Bronze.)

RADIATOR—Tubular, with fan.

LUBRICATION—Mechanically operated force feed oiler.



Four 14inch Platform Gang Plows in Sandy Loam
Operated by 12 year old boy.



Extreme test in water soaked quicksand. Under body of tractor scraping and draw-bar pushing sand.



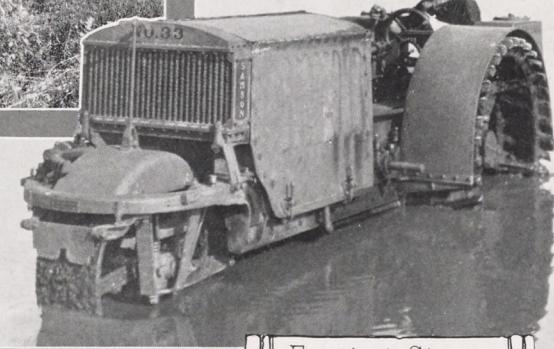
40 Disc Cultivator in Flooded Orchard.



Hauling ~



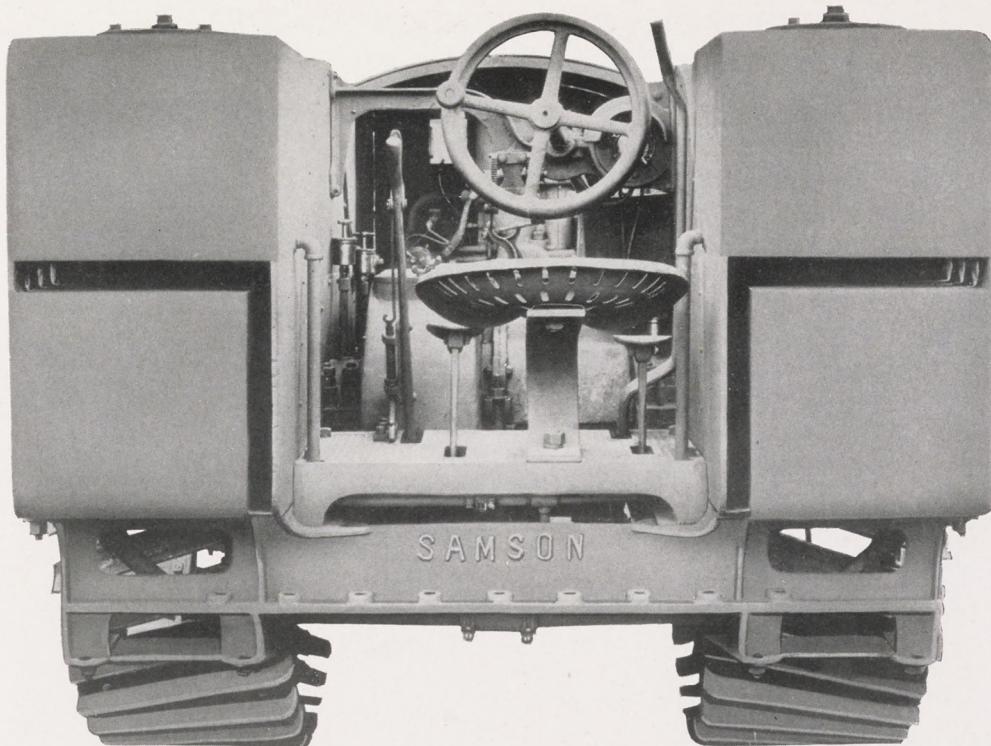
SIDE-HILL TEST
54% grade
measured by
grademeter



Fording Stream



Breaking Ground



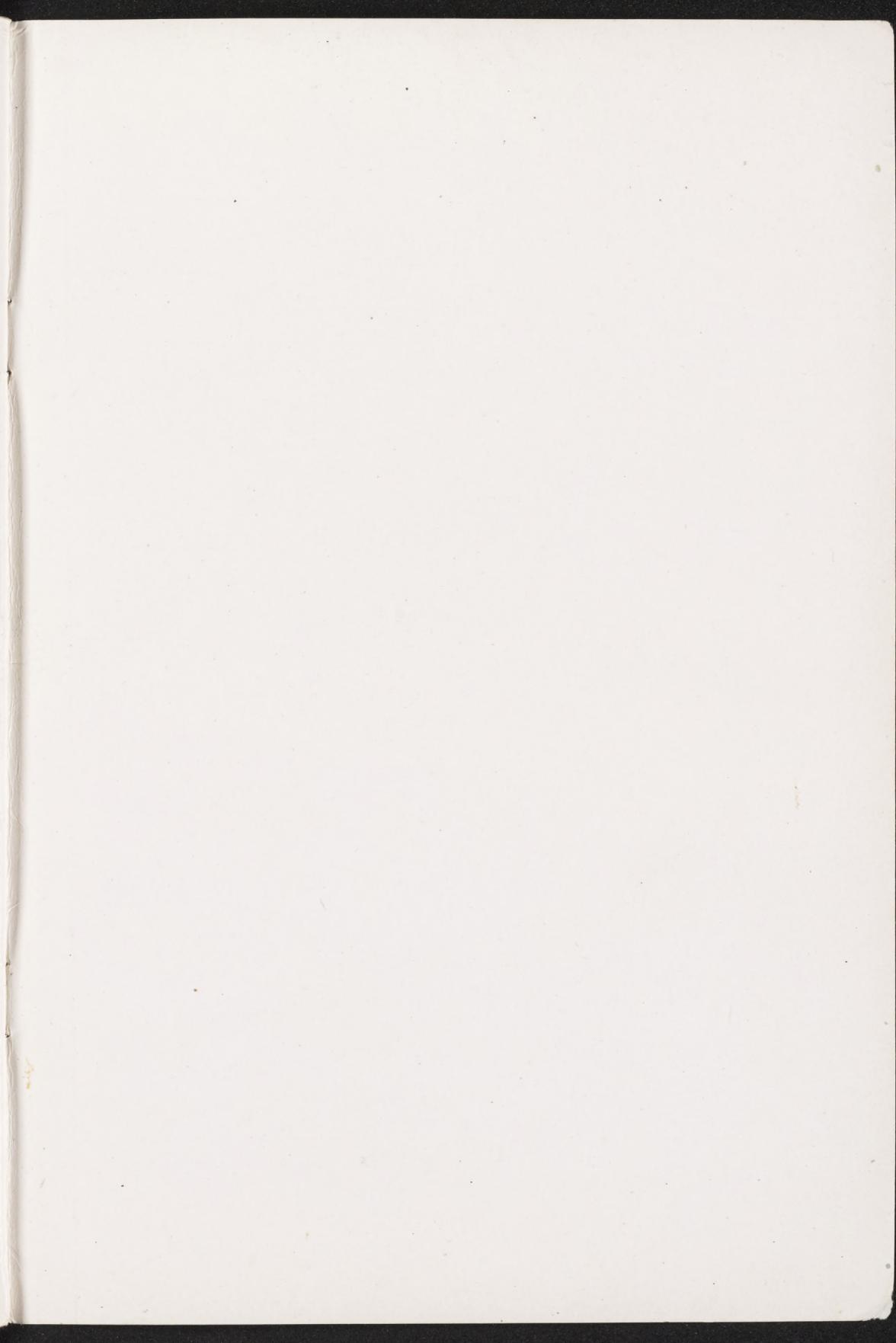
GUARANTEE

WE guarantee the engine has been tested out at our factory and a prony brake load developed of 30 horsepower; that the tractor itself has been operated under continuous plowing load of 8 horse pull in a clay or adobe soil and that the plows have at times been set down to a 15 horse pull during the test. That the workmanship of the tractor and its engine are first class.

And that we will supply any part which shows defect in material or workmanship, free of charge f. o. b. Stockton within one year from date of shipment, natural wear and tear and accidents excepted.

SAMSON IRON WORKS
Stockton, Calif.

PRODUCTION OF
THE ARTHUR J. BRUNNER COMPANY
SAN FRANCISCO



SEMON SieVe-Grip TRACTORS

